

What we claim is:

1. An apparatus comprising:

a controller;

a buffer, coupled to the controller, the buffer having a target fullness
5 associated therewith and providing the controller with current fullness
indications; and

wherein the controller includes means for collecting the current fullness
indications and means for periodically updating the target fullness of the
buffer in response to the current fullness indications.

2. The apparatus of claim 1, wherein the buffer has associated therewith an
upper threshold, identifying a maximum desired number of packets in the
buffer and a lower threshold, identifying a minimum desired number of
packets in the buffer, and wherein the controller controls transmission of
15 packets from the buffer if the collected current fullness indications indicate
that either the upper threshold or lower threshold have been crossed.

3. The apparatus of claim 2, further comprising transmission logic for
transmitting packets from the buffer, wherein the controller includes logic for
20 causing packets to be held in the buffer if the current fullness indicators
indicate that the lower threshold has been crossed.

4. The apparatus of claim 2, further comprising transmission logic for transmitting packets from the buffer, wherein the controller includes logic for discarding packets in the buffer if the current fullness indicators indicate that the upper threshold has been crossed.

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5. The apparatus of claim 1, wherein the means for updating the target fullness of the buffer includes means identifying a minimum fullness of the buffer over a given monitoring interval.

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6. The apparatus of claim 5, wherein the means for updating the target fullness of the buffer includes means calculating a delta value, the delta value calculated by subtracting the minimum fullness of the buffer from the lower threshold of the buffer.

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7. The apparatus of claim 6, wherein the means for updating the target fullness of the buffer includes means for adding the delta value to the target fullness.

8. The apparatus of claim 7 further including the step of reducing the delta value if it is determined that the minimum fullness is greater than the lower threshold.

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9. The apparatus of claim 5, wherein the means for updating the target fullness of the buffer includes means identifying a maximum fullness of the buffer over the given monitoring interval.

5 10. The apparatus of claim 9, wherein the means for updating the target fullness of the buffer includes means for calculating an average fullness of the buffer over the time period and reducing the average fullness by a difference between the minimum fullness and the lower threshold to provide an updated target fullness.

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11. A method for adapting a size of a buffer including the steps of:
monitoring a fullness of the buffer to track fullness characteristics of the buffer; and

15 periodically adjusting the size of the buffer in response to the fullness characteristics of the buffer.

12. The method of claim 11, wherein the fullness characteristics include a minimum fullness of the buffer, a maximum fullness of the buffer.

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13. The method of claim 11, wherein associated with the buffer is an upper threshold, identifying a desired maximum number of data units to be stored in

the buffer, and a lower threshold, identifying a minimum number of data units to be stored in the buffer.

14. The method of claim 13, wherein the upper threshold is selected to achieve a
5 desired playback offset of data received at the buffer.

15. The method of claim 13, wherein the lower threshold is selected to minimize data unit loss at the buffer.

10 16. A method for adapting a size of a buffer capable of receiving packets, the method including the steps of:

identifying a target fullness of the buffer, the target fullness indicating a desired number of packets to be stored in the buffer;

15 assigning an upper threshold and lower threshold to the buffer, the upper threshold indicating a maximum number of packets to be stored in the buffer, and the lower threshold indicating a minimum number of packets to be stored in the buffer;

monitoring the buffer for a time interval to obtain fullness characteristics of the buffer; and

20 adjusting the target fullness of the buffer in response to the fullness characteristics of the buffer .

17. The method of claim 16, wherein the fullness characteristics of the buffer include a maximum fullness and minimum fullness of the buffer over the time interval, and wherein the step of adjusting includes the step of comparing the minimum fullness of the buffer against the lower threshold.

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18. The method of claim 17, wherein the step of comparing the minimum fullness of the buffer against the lower threshold includes the step of calculating a delta value according to the below equation:

$$\text{Delta} = \text{minimum fullness} - \text{lower threshold}.$$

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19. The method of claim 18, wherein the value of delta is further reduced for a different rate of adjustment.

20. The method of claim 17, wherein the step of adjusting includes the step of adding the delta value to the target fullness.

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21. The method of claim 17, wherein the step of adjusting includes the steps of determining an average fullness of the buffer over the time period, and subtracting the difference between the minimum fullness and the lower threshold from the determined average fullness to provide an adjusted target fullness for the buffer.

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